KODIAK AIRPORT EIS
SUMMARY

SUMMARY: The following is a concise account of the analysis contained within the Kodiak Airport Final Environmental Impact Statement (FEIS). It explains why the FAA is considering improving runway safety areas, which alternatives would satisfy the project need, and the primary environmental impacts associated with construction and operation of those airport features.

Introduction

A runway safety area (RSA) is, according to the standards and guidelines the Federal Aviation Administration (FAA) has published for design of civil airports, a "defined surface surrounding a runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway" (FAA 1989). The dimensions of an RSA are based on the size of the aircraft and the speeds at which it approaches the runway.

The RSAs at the ends of runways 18/36 and 7/25 at Kodiak Airport, on Kodiak Island, Alaska, do not meet the FAA's design standard for the aircraft commonly using these runways. An RSA that meets the design standard would describe a 500-foot wide rectangular area centered upon the runway and extending 1,000 feet beyond each runway end. **Figure 1** shows the layout and facilities of Kodiak Airport, and illustrates how big the RSAs at the ends of these two runways should be.

Kodiak Airport needs to improve the safety areas around Runways 07/25 and 18/36 by December 31, 2015 in order to conform with the mandate provided by the Congress of the United States applying to civil airports in the U.S. The purpose of the RSA improvement project at Kodiak Airport is to meet the FAA's design standards to the extent practicable by that statutory deadline.

In response to the congressional directive, and after finding that it is practicable to improve Kodiak Airports RSAs, the FAA prepared an environmental impact statement (EIS) to assess all of the impacts associated with construction and operation of those airport features. This FEIS summary includes information the reader will find useful to understand why the FAA is considering improving RSAs, the main environmental concerns and areas of controversy, major conclusions of the FEIS, which alternatives the FAA prefers, and issues that remain to be resolved. Other information is found in this summary, but for a full explanation of these topics and the environmental analysis, the reader is referred to the FEIS (FAA 2013) and the project website at www.kodiakairporteis.com.

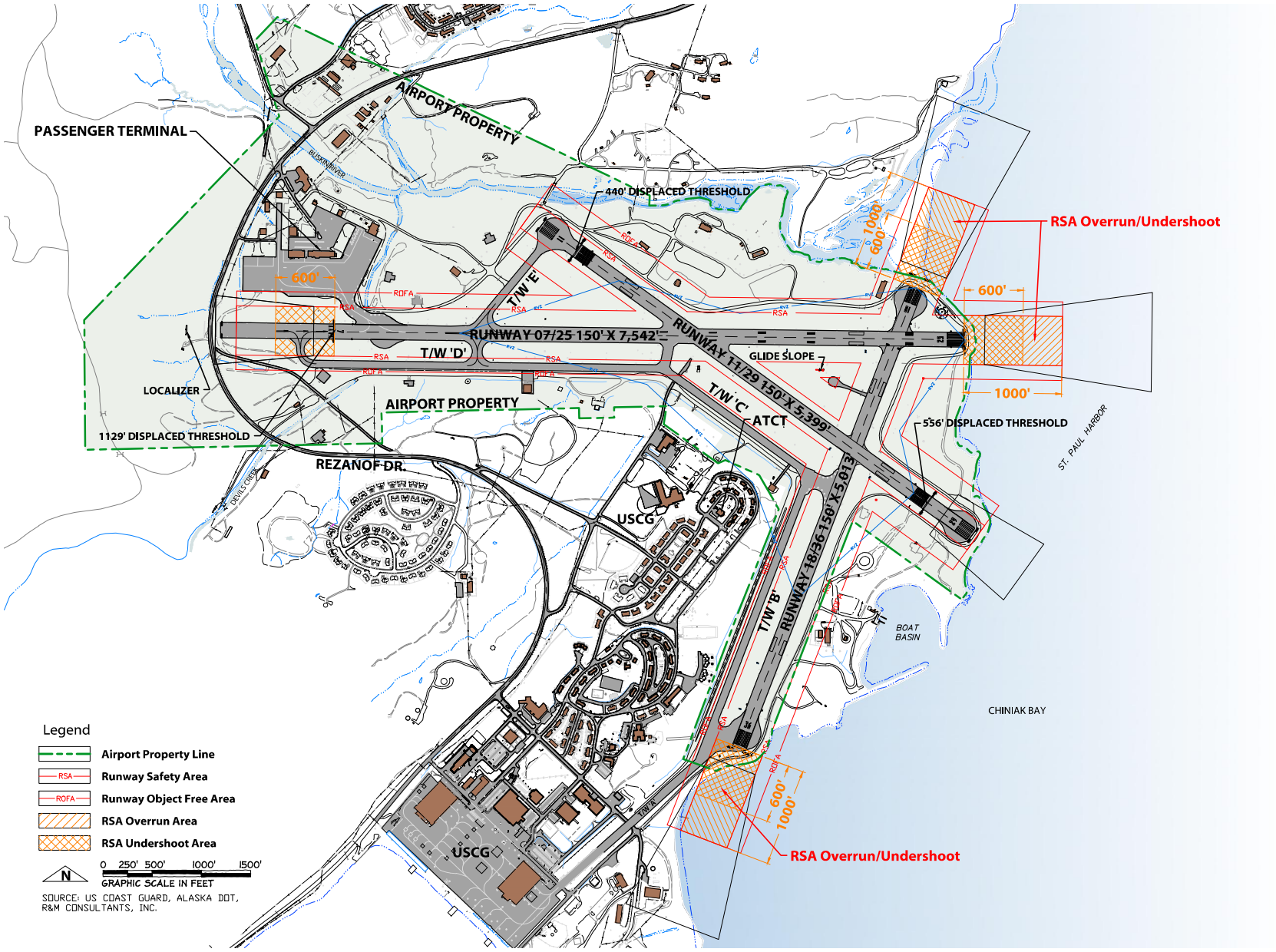

Figure 1

Existing Airport Dimensional Criteria

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Purpose and Need

Public Law 109-115 states that not later than December 31, 2015, the owner or operator of an airport certificated under 49 U.S.C. 44706 (such as the Kodiak Airport) shall improve the airport's RSAs to comply with the FAA design standards required by 14 Code of Federal Regulations part 139 (119 Stat. 2401 Nov. 30, 2005). Those standards are contained in the FAA Advisory Circular 150/5300-13. The next three paragraphs describe the extent of RSA shortcoming on two of the runways at Kodiak Airport.

Two of the three runways at Kodiak Airport have RSAs that are too small for the types of aircraft using them.

The minimum size for a particular RSA (known as the Design Standard) can vary depending on the type of aircraft expected to use the runway and, generally speaking, the largest and heaviest aircraft regularly operating on a runway dictates the RSA size. The FAA reviewed current and recent aircraft operational data for the Kodiak Airport and identified the Boeing 737-400 (which is operated by Alaska Airlines) as the "Design Aircraft" for Runways 07/25 and 18/36. The Boeing 737-400 falls within the wingspan category of Group III and approach category of C.[1]

The RSA design standard for this classification of aircraft at the runway ends is a 600-foot undershoot protection and 1,000 feet of overrun protection, with 250 feet of protection along each side of the runway centerline or 500-feet wide. Because the design aircraft could land and takeoff on either runway end, the RSA dimension for each of these runways can more simply be described as a 500-foot wide rectangular area centered upon the runway and extending 1,000 feet beyond each runway end.

In sum, this project is needed because the RSAs around Runway 07/25 and Runway 18/36 at Kodiak Airport do not meet the FAA's standards, which Congress has directed be met by December 31, 2015.

The purpose of this project is to improve the RSAs for these runways to meet the FAA's standards to the extent practicable, and to do so by the statutory deadline.

[1] All of the B737-series aircraft using or potentially using Kodiak Airport, such as the B737-200 or newer -700/800/900, fall within the same design categories and would require the same RSA dimensions.

Public Notification and Issue Identification (Scoping)

On February 15, 2007 the FAA published in the Federal Register a Notice of Intent to prepare the EIS and to initiate the "scoping" process, which included a public scoping meeting and agency scoping meetings. The public scoping meeting was conducted March 28, 2007 in Kodiak. The FAA held agency, tribal, and stakeholder scoping meetings on March 27 in Anchorage and March 28, 2007 in Kodiak.

Scoping is the process used by the FAA to request input – from the public, agencies, tribes and others – on the issues relating to the proposed action. These may include possible environmental impacts to resources that are particularly sensitive and other highly controversial issues, as well as ideas for alternatives that may meet the project need while offering advantages the proposed action does not include. The **Project Coordination Appendix** (**Appendix 13**) in the FEIS includes the scoping comments and input received throughout the FEIS process.

Scoping comments generally focused on the potential for the Build Alternatives to affect natural resources in the vicinity of the Airport and their importance to natural, commercial, subsistence, and recreational uses. The comments received helped to identify areas of concern and controversy, which helped to guide the environmental analysis contained within the FEIS, as well as helping to direct the alternatives examined in detail. Comments included the following:

- Concerns over natural resources and recreation near the Buskin River
- Access to subsistence resources
- Effect on subsistence resources
- Effect on cultural/traditional practices
- Effect on the Buskin River itself
- Effect on threatened, endangered, and sensitive species
- Socioeconomic effects

Based on these comments, the following items were included in the EIS to help focus the analysis on important resources and areas of concern:

- Modeling of the Buskin River, freshwater plume and marine currents
- Extensive biological surveys for marine and terrestrial areas
- Historic surveys of the area
- Close tribal coordination on cultural/traditional issues and subsistence

Additionally, development and analysis of alternatives took into account the added value of the Buskin River. As described below in the Alternatives section, the FAA examined alternatives that avoided this resource when able, and focused on alternatives that would maximize safety while minimizing impacts on the environment.

The DEIS was released October 19, 2012 for review and comment. A comment period was held from October 19th through December 18th 2012, and a public workshop and hearing was held on December 6th in Kodiak, Alaska. Comments on the DEIS received during this time were responded to and are included in **Appendix 14, *Response to Comments***. Further, **Appendix 12, *Subsistence Evaluation and ANILCA Application Appendix*** includes all comments received and responses for the ANILCA Title XI and Section 810 hearing and comment period.

The FEIS process has included extensive public and agency coordination. Comments have been documented and incorporated into the analysis and decision-making process. Written concurrence from NMFS on the Essential Fish Habitat Assessment and concurrence from NMFS and USFWS on the Biological Assessments were obtained and are included in **Appendix 5 (Essential Fish Habitat Assessment)** and **Appendix 6 (Biological Assessment)**.

Cooperating Agencies

The U.S. Coast Guard (USCG) owns the Kodiak Airport lands and facilities and leases these to the Alaska Department of Transportation and Public Facilities (ADOT&PF). Construction of the proposed project would take place on land managed by the USCG, although Runway Safety Area (RSA) improvements would occur outside of the current airport lease boundaries. Where construction would extend beyond the lands leased by ADOT&PF, the current lease would need to be amended prior to construction. The proposed project would involve fill into submerged lands that are a part of the Alaska Maritime National Wildlife Refuge. The submerged refuge lands are under USCG administration with the U.S. Fish and Wildlife Service (USFWS) having secondary jurisdiction.

At the initiation of the project, the FAA entered into cooperating agency agreements with agencies having special expertise regarding environmental resources and having jurisdiction by law over a resource or activity associated with this Federal action. Cooperating agencies for this project include the USCG, U.S. Army Corps of Engineers, and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). T

The FAA is also working closely with other federal and state agencies with expertise and jurisdiction for resources potentially affected by the proposed project. In addition to cooperating agency agreements, the FAA has offered and initiated formal consultation with federally recognized tribal organizations having interest in the project. The mitigation plan is currently the subject of ongoing government-to-government consultation between the Sun'aq Tribe and the FAA.

Funding and Schedule

Recognizing that there are always limits to the amount of money available for projects, and that project costs may differ depending on the type and extent of safety improvements needed, the FAA developed guidance that helps to define the feasible cost for RSA projects (FAA 2004). Using this guidance, and considering local and regional factors, the FAA determined that the maximum feasible cost of RSA improvements for Kodiak Airport is approximately $25 million each for Runways 07/25 and 18/36.

The RSA improvements would be completed using a combination of state and federal funding. Federal funding, using the FAA's Aviation Trust Fund, comes primarily from a nationwide airline passenger ticket tax.

Construction of the proposed project would occur over approximately two years. If the FAA approves the RSA project in 2013, major construction activities would probably begin in 2014 and be completed in 2015. A number of factors would influence the construction start time. Permits may include restrictions of various types that would dictate when construction could occur and for how long. For instance, stipulations could be imposed to protect natural resources, such as seasonal prohibitions to protect wildlife species of concern. The construction work would also be designed to minimize impacts on commercial and military aircraft operations.

Review of Alternatives

Chapter 2 of the FEIS described and analyzes alternatives for the proposed action. This project is intended to address a specific purpose and need. This section describes the method by which alternatives were initially identified to meet that purpose and need.

To ensure consideration of a reasonable range of alternatives, four primary types of alternatives were identified and the rationale for dismissing or keeping the alternative is described below:

- **No Action.** Consideration of the alternative of not pursuing the proposed improvements is required by the CEQ regulations implementing NEPA. This alternative is the baseline to which the "action" alternatives are compared. This alternative is required to be brought forward into analysis by NEPA.
- **Use of smaller aircraft and other modes of travel.** This includes consideration of using smaller aircraft, which do not require as large an RSA, or reducing the use of the Airport by reducing air travel. This alternative was dismissed from further evaluation because the FAA is not allowed to dictate the type of aircraft an air carrier uses and because air service meets a need that, due to the isolated nature of the island, cannot be met through water, rail or highway travel.

- **Use of other airports.** This involves consideration of reducing the need for improving the RSAs at Kodiak Airport by shifting operations or passengers to other area airports. This alternative was dismissed from further consideration because while use of other airports is possible, it would require travel by water to begin or end air travel, which is not a reasonable alternative given the added time requirements.

- **Physical airport improvements.** These alternatives consider different physical RSA improvements (such as construction of graded RSA; relocation, shifting, or re-aligning runways; and use of Engineered Materials Arresting Systems (EMAS) – i.e. crushable concrete blocks placed at the end of the runway used for stopping aircraft at Kodiak Airport to achieve the project purpose and need. The Build Alternatives analyzed in the EIS stem off of this option.

In developing specific Build Alternatives to analyze, many types of physical airport improvements were examined, including:

- Construction of traditional graded areas surrounding the runways.
- Relocation (changing the location of the runway), shifting (changing the arrival/departure runway ends by adding new landmass on one or both ends), or re-alignment (changing the direction of the runway centerline) of the runway while maintaining runway length.
- Reduction in the runway length where existing runway length exceeds that which is required for the existing or projected design aircraft.
- A combination of runway relocation, shifting, and grading.
- Declared distances (i.e., the distances the Airport owner declares and the FAA approves as available for the airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements, see **Section 2.2.5**).

- Engineered Materials Arresting Systems (EMAS) – i.e. crushable concrete blocks placed at the end of the runway used for stopping aircraft.

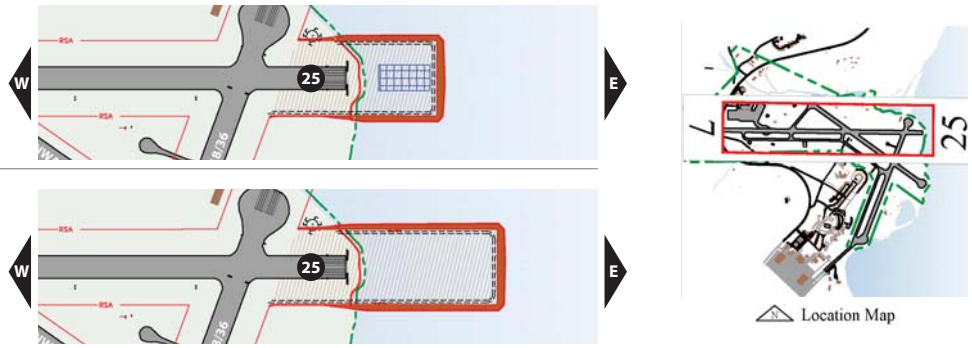
Due to natural physical barriers (i.e., the close proximity of mountainous terrain, the Buskin River, and the ocean) and runway length requirements, relocation or re-alignment of runways, reduction in runway length, and declared distances were determined to not be reasonable alternatives for improving the RSAs. However, the FAA determined that construction of additional graded RSA (with or without runway shifting) and EMAS warranted further evaluation.

Fully meeting the RSA standards for Runway 07/25 and Runway 18/36 would not be practicable due to cost (the maximum feasible RSA improvement cost for Kodiak Airport is approximately $25 million for each runway). Accordingly, a range of alternatives were developed for "non-standard" RSAs to improve the safety area to the extent practicable using grade-and-fill (including shifting for one Runway 18/36 alternative) and EMAS options. Two Build Alternatives were developed for Runway 07/25 and six Build Alternatives were developed for Runway 18/36. These Alternatives are described below and depicted in **Figure 2**.

RUNWAY 7/25 ALTERNATIVES

ALTERNATIVE 2
Extend RSA
- East: 600′ + 70kt EMAS

ALTERNATIVE 3
Extend RSA
- East: 1,000′



RUNWAY 18/36 ALTERNATIVES

ALTERNATIVE 2
Extend RSA
- North: 240′ + 40kt EMAS
- South: 600′

ALTERNATIVE 3
Extend RSA
- North: 450′ + 70kt EMAS
- South: 240′

ALTERNATIVE 4
Extend RSA
- North: 300′ + 40kt EMAS
- South: 300′ + 40kt EMAS

ALTERNATIVE 5
Extend RSA
- North: 600′
- South: 600′

ALTERNATIVE 6
Extend RSA
- North: 240′ + 40kt EMAS
- South: 400′ + 40kt EMAS

ALTERNATIVE 7
Extend RSA
- North: 40kt EMAS
- South: 600′, Shift Runway 240′

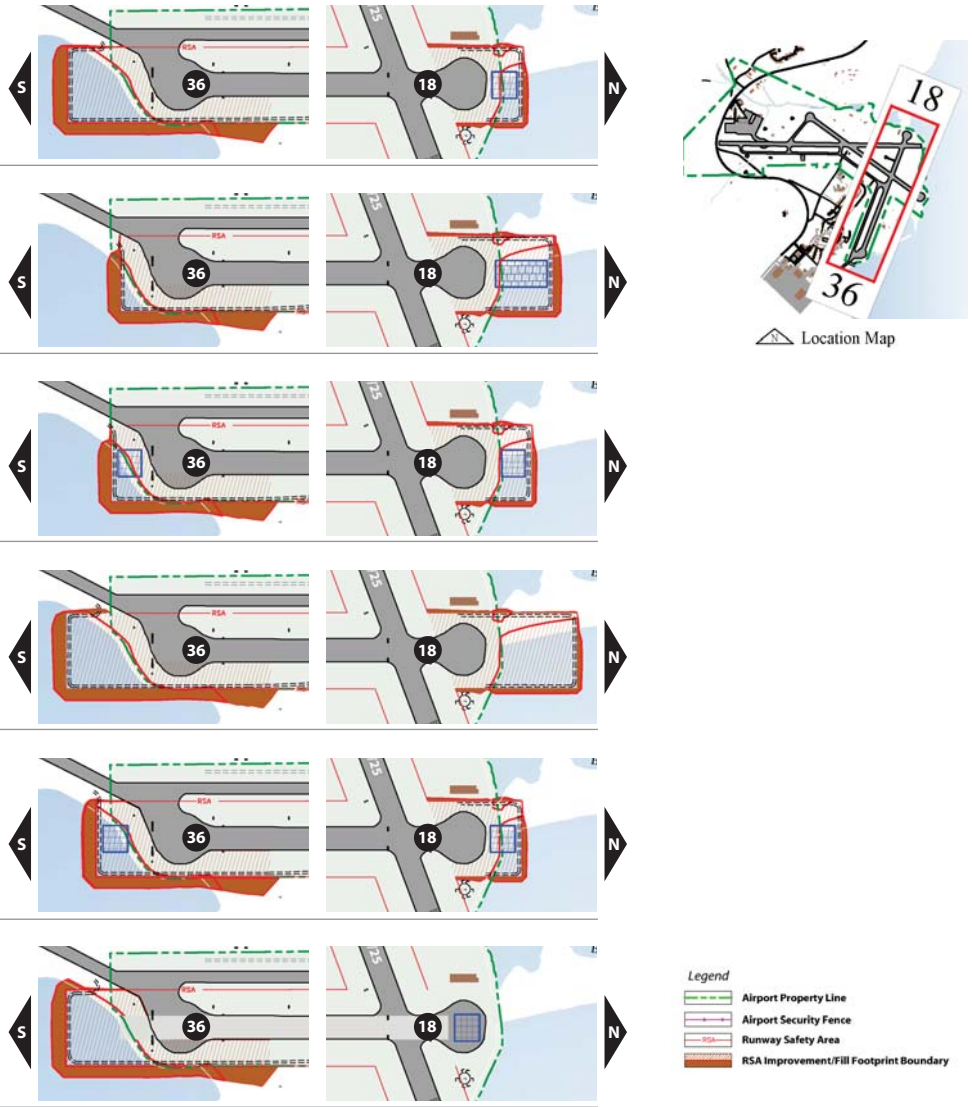


Figure 2 **Kodiak Airport Runway Safety Area (RSA) Improvement Build Alternatives**

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Runway 07/25 Alternatives:

Runway 07/25 Alternative 1 - No Action: The No Action Alternative would retain the Runway 07/25 RSAs in their current non-standard dimensions with no RSA improvements.

Runway 07/25 Alternative 2 – Extend Runway 25 RSA landmass by 600 feet and install 70-kt EMAS on newly constructed landmass. Runway 07/25 Alternative 2 would enhance the RSA at the east end of the runway through an extension into St. Paul Harbor to the east and the use of EMAS. Fill would be placed off Runway end 25 to create a landmass 600 feet long by 500 feet wide. The Airport's existing runway length of 7,542 feet would be maintained. The Runway end 25 EMAS bed would be approximately 170 feet wide and 340 feet long, installed on pavement with a minimum setback of 35 feet from the runway threshold (final setback would be based upon final design).

Runway 07/25 Alternative 3 – Extend Runway 25 RSA landmass by 1,000 feet. This alternative would improve the RSA for overruns during takeoff and undershoot during landings for Runway end 25. Fill would be placed beyond Runway end 25 to the east to create a landmass 1,000 feet long by 500 feet wide. The Airport's existing runway length of 7,542 feet would be maintained.

Runway 18/36 RSA Alternatives.

The following alternatives were developed for the proposed RSA improvements to Runway 18/36 at Kodiak Airport. The range of alternatives below includes alternatives that provide RSA improvements to both runway ends with and without the use of EMAS.

Runway 18/36 Alternative 1 – No Action. The No Action Alternative would retain the Runway 18/36 RSAs at their current non-standard dimensional status with no improvements.

Runway 18/36 Alternative 2 – Extend RSA to the south by 600 feet, to the north by 240 feet and install 40-kt EMAS on newly constructed landmass (north). Runway 18/36 Alternative 2 would enhance the RSA at the south end of the runway through a 600-foot extension south into St. Paul Harbor and would enhance the RSA at the north end of the runway through a 240-foot extension into St. Paul Harbor and the use of EMAS. The existing runway length of 5,013 feet would be maintained. The Runway end 18 EMAS bed would be approximately 170 feet wide and 155 feet long, installed on pavement with a minimum setback of 35 feet from the runway threshold (final setback would be based upon final design).

Runway 18/36 Alternative 3 – Extend RSA south by 240 feet, north by 450 feet and install 70-kt EMAS (north). Runway 18/36 Alternative 3 would enhance the RSA at the south end of the runway through a 240-foot extension into St. Paul Harbor and would enhance the RSA at the north end of the runway through a 450-foot extension into St. Paul Harbor and the use of EMAS. The existing runway length of 5,013 feet would be maintained. The Runway end 18 EMAS bed would be approximately 170 feet wide and 340 feet long, installed on pavement with a minimum setback of 35 feet from the runway threshold (final setback would be based upon final design).

Runway 18/36 Alternative 4 – Extend RSA to north and south by 300 feet and install 40-kt EMAS (both ends). This alternative would enhance the RSA at each end of Runway 18/36 through extensions of the landmasses at both ends of the runway into St. Paul Harbor. Fill would be placed beyond both the north and south ends of the runway to create two landmasses 300 feet long by 500 feet wide at each runway end for a total of 600 additional feet. An EMAS bed approximately 170 feet wide and 155 feet long would be placed beyond each runway end, installed on pavement with a minimum setback of 35 feet from the runway threshold (final setback would be based upon final design). The existing runway length of 5,013 feet would be maintained.

Runway 18/36 Alternative 5 – Extend RSA to north and south by 600 feet. This alternative would enhance the RSA at each end of Runway 18/36 through extensions of the landmasses at both ends of the runway into St. Paul Harbor. Fill would be placed off both the north and south ends of the runway to create two landmasses 600 feet long by 500 feet wide beyond each runway end for a total of 1,200 additional feet. The existing runway length of 5,013 feet would be maintained.

Runway 18/36 Alternative 6 – Extend RSA to south by 400 feet and to north by 240 feet and install 40-kt EMAS (both ends). Runway 18/36 Alternative 6 would enhance the RSA at the north end of the runway through a 240-foot extension into St. Paul Harbor and the use of EMAS. This alternative would also enhance the RSA at the south end of the runway through a 400-foot extension into St. Paul Harbor and the use of EMAS. The existing runway length of 5,013 feet would be maintained. An EMAS bed approximately 170 feet wide and 155 feet long would be placed beyond each runway end, installed on pavement with a minimum setback of 35 feet from the runway threshold (final setback would be based upon final design).

Runway 18/36 Alternative 7 – Extend RSA to south by 600 feet, shift runway south 240 feet, and install 40-kt EMAS on existing pavement (north). Runway 18/36 Alternative 7 would enhance the RSA at the north and south end of Runway 18/36 through a 600-foot long by 500-foot wide landmass extension at the south, beyond Runway end 36 and shifting the runway 240 feet to the south. An EMAS bed approximately 170 feet wide and 155 feet long would be placed beyond Runway end 18 (north), installed on pavement with a minimum setback of 35 feet from the runway threshold (final setback would be based upon final design). The EMAS bed would provide a 40-knot stopping capability on Runway end 18 for the runway's design aircraft.

The existing runway length of 5,013 feet would not change but the runway end thresholds would be shifted 240 feet south of their current locations. The existing runway length of 5,013 feet would be maintained.

Table 1 provides a summary of the RSA alternatives evaluated in the EIS.

TABLE 1
RANGE OF ALTERNATIVES SUMMARY

Runway 07/25	**Runway end 07 RSA**	**Runway end 25 RSA**	**Meets Runway 07 Overrun Standard**	**Meets Runway 07 Undershoot Standard**	**Meets Runway 25 Overrun Standard**	**Meets Runway 25 Undershoot Standard**	**Estimated Cost**
Alternative 1	0'	0'	No	Yes	No	No	$0
Alternative 2	0'	600'[1]	Yes	Yes	No	Yes	$22 million
Alternative 3	0'	1,000'	Yes	Yes	No	Yes	$20 million
Runway 18/36	**Runway end 18 RSA**	**Runway end 36 RSA**	**Meets Runway 18 Overrun Standard**	**Meets Runway 18 Undershoot Standard**	**Meets Runway 36 Overrun Standard**	**Meets Runway 36 Undershoot Standard**	**Estimated Cost**
Alternative 1	0'	0'	No	No	No	No	$0
Alternative 2	240'[2]	600'	No	No	No	Yes	$27 million
Alternative 3	450'[1]	240	No	No	Yes	No	$24 million
Alternative 4	300'[2]	300'[2]	No	No	No	No	$24 million
Alternative 5	600'	600'	No	Yes	No	Yes	$27 million
Alternative 6	240'[2]	400'[2]	No	No	No	No	$26 million
Alternative 7	240'[2,3]	360'[3]	No	No	No	No	$27 million

[1] Incorporates the use of a 70-knot EMAS bed
[2] Incorporates the use of a 40-knot EMAS bed
[3] Incorporates a 240' runway shift to the south onto a 600' constructed landmass

Preferred Alternatives

Of the alternatives described above, the FAA has identified a preferred RSA-improvement alternative for runways 07/25 and 18/36. These Preferred Alternatives are illustrated in **Figure 3** and described in the text of the previous section. The Preferred Alternatives were selected based upon their ability to meet the project purpose and need while minimizing the anticipated environmental impacts.

For Runway 07/25, Alternative 2 was chosen as the Preferred Alternative because it would require the smallest fill footprint, therefore minimizing the environmental impacts compared to Alternative 3. For Runway 18/36, Alternative 7 was chosen because it represented the only alternative that avoided placing fill in the sensitive Buskin River area and associated freshwater plume, which was identified as an important resource and a major concern for both the community and relevant agencies. Runway 18/36 Alternative 7 also minimizes fill toward the Buskin River State Recreation site. The best available information was used in identifying these Preferred Alternatives.

Their potential environmental impacts are summarized below. Additionally, the impacts of the entire range of alternatives is included in **Table 2** at the end of this summary chapter.

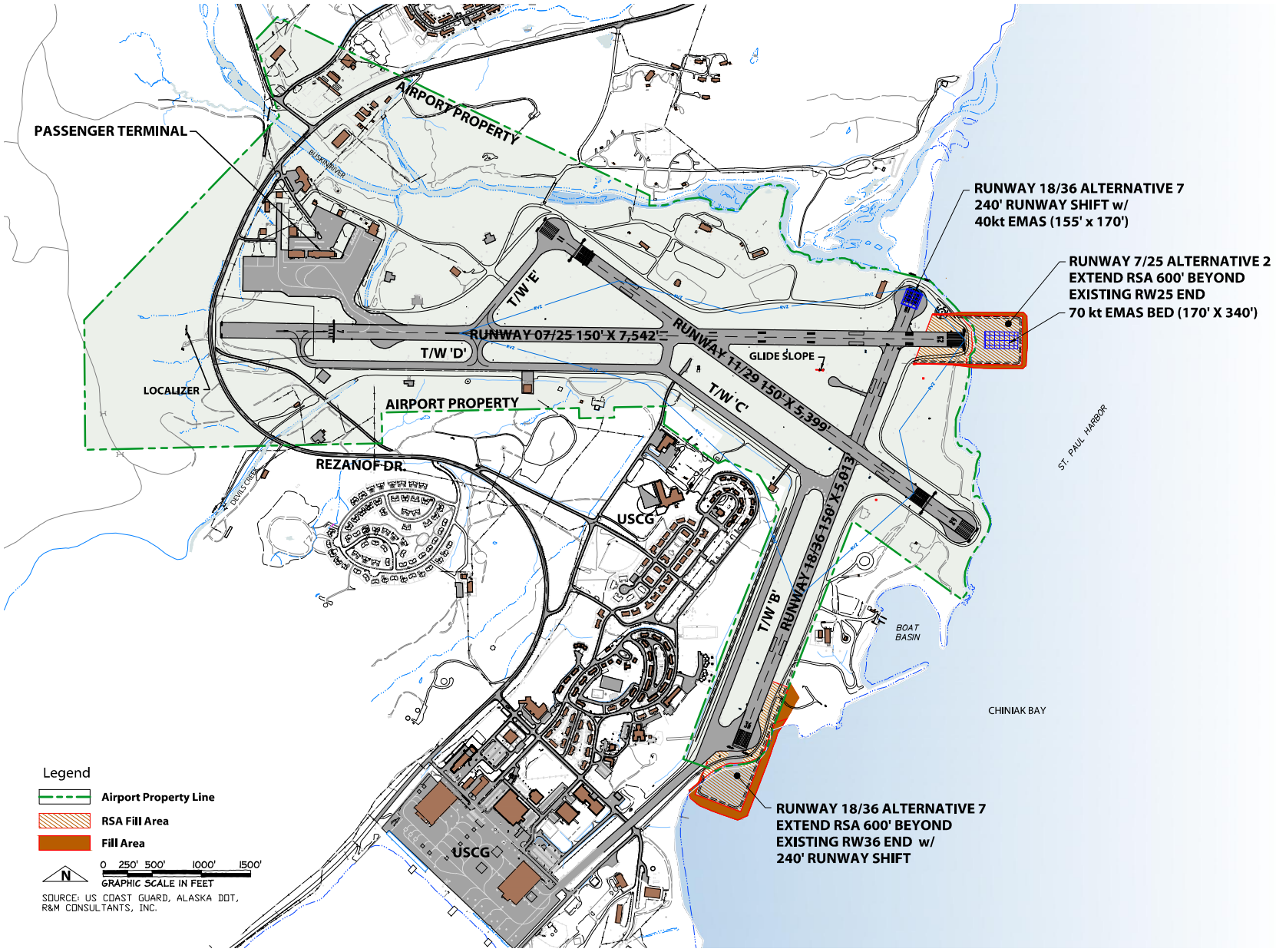

Figure 3

Preferred Alternatives (Runway 7/25 Alternative 2 and Runway 18/36 Alternative 7)

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Summary of Environmental Consequences

The effects of the proposed project associated with each Preferred Alternative are described in the following sections. Each of the resource categories described below includes a discussion of the major areas of concern and an overview of the environmental consequences that could result from construction and operation of the Preferred Alternatives. Combined impacts of all the Alternatives are also addressed in the FEIS. Generally, these combined impacts are additive. While this section of the Summary addresses the effects relating to the Preferred Alternatives, the potential environmental impacts for the entire range of alternatives is summarized at the end of Summary in **Table 2**.

Wetlands and Other Waters of the U.S.

Seven wetlands were identified in the Project Area, all of them are characterized as one of two types: Freshwater (so-called "palustrine") or tidally influenced (so-called "estuarine") wetlands. In addition to these wetlands, the Buskin River and associated rivers and streams are riverine systems considered waters of the U.S., while St. Paul Harbor is also a water of the U.S., but classified as a marine system. The Buskin River is not directly affected by the Preferred Alternatives, but they do directly impact the marine waters of St. Paul Harbor. These wetlands and waters of the U.S. are protected by one or more regulations under the federal Clean Water Act or the Rivers and Harbors Act.

Runway 07/25 Alternative 2 would fill marine waters of St. Paul Harbor, but have no effect on wetlands. It would have less direct impacts on marine waters than the other Runway 07/25 Alternative; however, because of the magnitude of tidal waters lost and the adverse, indirect affect to the maintenance of natural systems that support fish habitat, the Runway 07/25 Alternative 2 would have a significant impact on waters of the U.S. The proposed mitigation plan for these effects is summarized in Chapter 6 ("Mitigation") of the FEIS.

Runway 18/36 Alternative 7 would fill a small depressional palustrine wetland in the Airport infield (Wetland D). While the other Runway 18/36 Build Alternatives would fill a small portion of the estuarine intertidal wetland near the Buskin River at the north end of Runway end 18 (Wetland A), the Preferred Alternative would not affect Wetland A. Wetland D provides low to moderate water quality, flood attenuation, and habitat functions, and these would be eliminated if the wetland is filled. The consequences of this loss would be minor because the wetland is so small that the amount of ecological function it can provide is limited.

Water from this wetland flows directly to St. Paul Harbor which can absorb any increase in runoff volume or pollutant load without substantially altering water quality. Habitat functions of this wetland are similarly limited by size and are provided in abundance elsewhere in the airport vicinity. The impacts on wetlands would not be significant.

Runway 18/36 Alternative 7 would also directly affect the marine waters of St. Paul Harbor through fill of 9.13 acres of marine waters. Fill placed off of Runway end 36 into St. Paul Harbor would have a direct, adverse effect on both subtidal and intertidal marine waters. Not only would waters of the U.S. be lost, but there would be a concurrent direct loss of aquatic habitat and substrate. For all but Runway 18/36 Alternative 7, there would be impacts to areas in the Buskin River freshwater plume, which has been identified as an important resource to the community and habitat for species of concern. Alternative 7 (the Preferred Alternative) is the only Runway 18/36 Alternative that does not involve fill on Runway End 18, thereby avoiding this area of concern.

Fish and Invertebrates

The Preferred Alternatives would require placing fill in marine waters and would result in direct habitat loss as well as indirect effects to physical processes that shape aquatic habitats and the species that live there. Aquatic habitat at the Buskin River barrier bar (north of Runway end 18) is unique in Chiniak Bay and offers one of the few low-gradient, soft-bottom areas available to juvenile salmonids from the Buskin River. These species enter marine waters via the Buskin River freshwater plume and require a transitional rearing period during which they are dependent on areas reached by the plume. Loss of this habitat north of Runway end 18 would cause significant long term adverse effects to aquatic species and populations in the Buskin River area. Runway 18/36 Alternative 7 (Preferred Alternative) would avoid this resource and the associated significant effects on the Buskin River area.

Runway 07/25 Build Alternatives (including Runway 07/25 Alternative 2 – Preferred Alternative) would significantly change the distribution of the Buskin River freshwater plume, also resulting in significant impacts. However, this alternative would minimize those impacts as compared to the other Runway 07/25 Build Alternative that has a larger fill footprint. Runway 07/25 Alternative 2 would change the substrate, gradient, and freshwater influence of existing habitats, resulting in major impacts to Buskin River salmonids. The Landscape Area consists of the nearshore marine waters of Chiniak Bay between Spruce Cape and Cape Chiniak, including its sub-bays: St. Paul Harbor, Womens Bay, Middle Bay, and Kalsin Bay. At the landscape scale, Runway 07/25 Alternative 2 (Preferred Alternative) would have major impacts to sockeye salmon and Dolly Varden because the Buskin River basin is an essential and unique habitat for those populations, and the habitat loss would also affect one of the food sources for sockeye salmon, Pacific sand lance.

However, these effects would be smaller than those by Runway 07/25 Alternative 3 due to the smaller fill footprint. Effects to other salmonids at the landscape scale would be minor for all Build Alternatives because other Chiniak Bay stream basins produce populations of these species that contribute to the overall salmonid population in the Bay.

Runway 18/36 Alternative 7, which places fill on Runway end 36, would also affect aquatic species and functions, but to a lesser degree than fill to the north because the existing habitat is less unique and diverse. Moderate long term changes to physical processes and habitat functions would be anticipated from alternatives involving fill off of Runway end 36. Overall, Runway 18/36 Alternative 7 (Preferred Alternative) would have the least (moderate level) impacts of all alternatives because it would avoid filling toward the Buskin River and no fill would occur in areas of freshwater influence.

All Build Alternatives are located in areas designated as Essential Fish Habitat (EFH) for Pacific salmon, various groundfish, and forage fish species. Build Alternatives would adversely affect EFH by filling habitat and replacing the perimeter of the RSAs with armor rock, and substrate with lower function and value for most EFH species.

The FAA has entered into a Cooperating Agency Agreement with the National Marine Fisheries Service (NMFS) that includes consultation with NMFS and other agencies to assist in the determination of effects to fish, invertebrates, and other marine species under their jurisdiction. Additionally, the FAA consulted with other Federal and state agencies, including the U.S. Fish and Wildlife Service (USFWS) and the Alaska Department of Fish and Game (ADF&G), to assist in the review of the analysis presented in the FEIS. The NMFS provided concurrence on the Essential Fish Habitat Assessment, which is included in Appendix 5.

Waterbirds

Five special-status waterbird species would be affected by improvement of RSAs. The Steller's Eider is a federally-listed threatened species, as well as an Alaska species of concern that is included on the Audubon Nationwide Watchlist. The four other species, including Black Oystercatcher, Emperor Goose, Pelagic Cormorant, and Marbled Murrelet, are all considered "Sensitive" species due to their inclusion on an Audubon Nationwide or Alaska Watchlist, or listing as a Bird of Conservation Concern Priority Species. This sensitive status is not a federal designation. Use of the Project Area and the nearshore and pelagic waters by waterbirds were documented using shore-based and boat based point count surveys. Shore-based surveys documented species and numbers of individuals that could be directly impacted by the alternatives. As many of the waterbird species are mobile, boat based surveys provided a more comprehensive overview of waterbird use in the Project Area.

The direct, adverse impacts of the Preferred Alternatives on waterbird species would include the permanent alteration and, in some cases, loss of habitats along with temporary displacement of waterbirds as a result of human presence and noise associated with project construction activities. The loss of foraging habitat may have a minor impact on individual waterbirds, but would not affect the stability of any waterbird populations in the Project Area due to the large amount of available suitable habitat within Chiniak Bay. Waterbirds most affected by RSA expansion would include divers, dabblers, gulls, terns, shorebirds, and some alcids that predominately use sandy intertidal habitats.

During construction, species in the RSA fill areas and vicinity would be displaced to other suitable areas and may return once construction is completed. Other short-term and long term impacts include the permanent loss of foraging habitat for most species and the loss of nesting habitat for the Marbled Murrelet. The Steller's Eider and Emperor Goose would lose winter foraging habitat as a result of the conversion of nearshore water habitat to uplands. Under Runway 18/36 Alternative 7, the Black Oystercatcher and Emperor Goose would be adversely affected by the loss of intertidal sand and gravel beach habitat; however, this impact would not be significant. The Marbled Murrelet was rare in the Project Area, but could lose potential foraging habitat in nearshore waters from all Build Alternatives. It could also lose a small area of breeding habitat under the Runway 18/36 RSA Build Alternatives. Any displaced breeding Marbled Murrelets are expected to be able to find alternative nesting areas within remaining Sitka spruce forest and be able to forage in other areas. No significant impacts on waterbirds would result from the Preferred Alternatives. The USFWS has provided a letter of concurrence on the Biological Assessment, which is included in the **Appendix 6 (Biological Assessment Appendix).**

Marine Mammals

Marine mammal habitat includes the intertidal and subtidal waters (collectively called nearshore waters) in the Project Area. The direct effects of the Preferred Alternatives on marine mammals and their habitat would include the permanent removal and alteration of nearshore waters due to the placement of fill in these areas. Direct impacts would also include temporary displacement of some individuals from the Project Area as a result of human presence and noise associated with project construction activities. The removal of designated critical habitat for the Northern sea otter would displace individual otters currently using the Project Area, but these individuals are expected to be able to utilize alternate areas in the vicinity and the displacement is not expected to affect their survival or reproduction. The number of displaced individuals is small relative to the population as a whole; therefore population level impacts are not expected. The loss of foraging habitat may have a minor impact on other individual marine mammals, but would not affect the stability of any other marine mammal populations in the Project Area.

The Preferred Alternatives would have adverse effects on marine mammals in the short term due to construction activities and the placement of fill material. Over the long term, the increase of armor rock habitat, which would be similar in structure to the naturally occurring rocky shore habitat, could benefit marine mammals that use rocky shore habitats since it expected that the area would be colonized by benthic food resources or kelp. Rock armor habitat would be around RSA sides and end slopes. Of the Runway 07/25 Build Alternatives, the Runway 07/25 Alternative 2 would result in the smallest permanent loss of marine mammal habitat at approximately 2.9% of the overall marine mammal habitat in the Project Area. Runway 18/36 Alternative 7 would result in approximately 2.8% loss of marine mammal habitat in the Project Area. Because the effects on marine mammals would be minor, no significant project-related impacts would occur with any of the Build Alternatives.

The amount of Northern sea otter and Steller sea lion federally designated critical habitat in the Project Area that would be filled by each of the Build Alternatives vary slightly by species because different shoreline datasets are used by different management agencies (NMFS and USFWS) to delineate the shoreward extent of critical habitat for the respective species. However, both species have the same effective critical habitat within the Project Area. The *Marine Mammal Habitat* impacts are based on field-verified elevation data and represent the best scientifically available estimate for actual impacts to critical habitat. Runway 07/25 Alternative 2 would result in the least amount of Northern sea otter (11.0 acres or 3.5% of critical habitat in the Project Area) and Steller sea lion (9.7 acres or 3.0% of critical habitat in the Project Area) critical habitat removal. Runway 18/36 Alternative 7 would result in 8.4 acres (2.7% of critical habitat in the Project Area) of Northern sea otter and 7.6 (2.4% of critical habitat in the Project Area) of Steller sea lion critical habitat removal. The critical habitat unit within the Project Area is 310.9 acres for the sea otter and 319 acres for the Steller sea lion. Because of the small amount of area lost compared to total habitat available, regardless of which alternatives are chosen, function and conservation role of the affected critical habitat unit would not be adversely affected.

The FAA initiated ongoing informal consultation with the USFWS and NMFS for Kodiak Airport. A Biological Assessment for all federally-listed species potentially impacted by the project (including the Steller's Eider, Northern sea otter, and Steller sea lion) has determined that there would not be significant adverse project-related impacts to any federally listed species or their designated critical habitat. Through consultation with the USFWS and NMFS, they have provided concurrence with the Biological Assessments and the FAA's determination of effect. The Biological Assessments and concurrence letters are provided in **Appendix 6 (Biological Assessment Appendix)**.

Terrestrial Wildlife and Vegetation

Vegetation. Runway 07/25 Alternative 2 would affect about 3.2 acres, or less than 1 percent of the total vegetated cover in the Project Area. Of the six Runway 18/36 Build Alternatives, Alternative 7 (Preferred Alternative) would affect the smallest vegetated area, about 3.7 acres. If RSA Build Alternatives are approved for both runways, the amount of upland vegetation lost would be about 2 percent of vegetated cover in the Project Area.

Overall, no significant impacts on vegetated cover types in the Project Area are expected. No federally listed threatened or endangered plants would be affected. Several species were identified as species of concern that were non-listed sensitive species. Occupied and potential habitat for non-listed sensitive plants including sessileleaf scurvygrass, Oriental popcornflower, and Alaska mistmaiden are known to occur in the Project Area and the Landscape Area. The adverse impacts of project implementation on the overall productivity and population sustainability of non-listed sensitive plant species and vegetation types in the Landscape Area would be small and not significant.

Upland Wildlife. There are no federally listed threatened or endangered upland wildlife species known to occur in the Project Area or Landscape Area. The direct, adverse impacts of each of the Preferred Alternatives on general, high-interest, and non-listed sensitive upland wildlife species would include the permanent removal or alteration of habitat. Direct impacts would also include temporary displacement of some wildlife individuals from the Project Area as a result of human presence and noise during construction. The loss of foraging habitat and breeding grounds may have a minor impact on some wildlife individuals but would not affect the population sustainability of any wildlife species occurring in the Project Area.

Several wildlife species with potential to occur in the Project Area are considered high-interest species due to their popularity as watchable wildlife, controversy involving their management, their value as game or subsistence-use species, or their safety hazard to aircraft on approach or takeoff. High-interest species were identified during public and agency scoping and consist of the Kodiak brown bear, Sitka black-tailed deer, Bald Eagle, Arctic ground squirrel, American beaver, and snowshoe hare. Individuals of these species may be disturbed by construction activities, but these impacts would be temporary. There would be no substantive, long-term adverse impacts to high-interest species habitats resulting from project implementation. Effects on population dynamics or sustainability for Sitka black-tailed deer, Arctic ground squirrel, American beaver, and snowshoe hare would be minor and not significant. Adverse indirect impacts to Kodiak brown bear and Bald Eagles are likely, but effects on population dynamics or sustainability would be less than significant.

Indirect impacts to the Kodiak brown bear are anticipated due to the likely reduction in salmon runs under the Preferred Alternatives. Reduction in the salmon runs could result in decreased overwinter survival or reproductive fitness of individual bears. Reduced salmon runs may also cause individual bears to forage for food elsewhere, potentially increasing bear/human conflicts in the lower Buskin River and areas nearby. Indirect effects on the Kodiak brown bear population are directly linked to the extent of RSA buildout at runway ends 18 and 25 and the degree to which juvenile salmonid habitat is adversely impacted. Runway 07/25 Alternative 2 and Runway 18/36 Alternative 7 in combination would have the least indirect effect on Kodiak brown bear.

Indirect effect on Bald Eagles could result from impacts to salmon runs upon which the Bald Eagle forages. However, given that Bald Eagles are highly mobile and able to use a variety of food resources within the Landscape Area, impacts to this high-interest species would be less than significant.

There is suitable habitat for the Peregrine Falcon, Northern Goshawk, and Olive-sided Flycatcher in the Project Area, although the Peregrine Falcon is the only non-marine non-listed sensitive species known to occur there. The Peregrine Falcon is a habitat generalist and may use most of the habitat types in the Project Area for foraging. Given that cliffs or other potentially suitable Peregrine Falcon nesting habitat do not occur in the Project Area and foraging habitats are prevalent throughout the Landscape Area, impacts to Peregrine Falcon would be minor and not significant. The Northern Goshawk and Olive-sided Flycatcher are habitat specialists and use only the Sitka spruce forest habitat type. None of the Runway 07/25 alternatives would affect Sitka spruce forest. Runway 18/36 Alternative 7 would impact approximately 0.2 acre (0.1%) of this habitat. Potential impacts to Northern Goshawk and Olive-sided Flycatcher would be minor and not significant.

Historical, Architectural, Archaeological, and Cultural Resources

Cultural resources in the project area include historic structures, prehistoric and historic archaeological sites, and resources that play a significant role in the maintenance of cultural identity among members of local federally recognized tribes. The majority of the archaeological sites and historic structures present in the area are directly related to uses of the land by the U.S. military prior to, during, and after World War II. Most of these resources are considered part of a large National Historic Landmark that encompasses the existing USCG Base and associated properties. Archaeological resources in the area of the airport also include evidence of the prehistoric past, as represented by remains of old village sites.

While sites of this type are known to be plentiful in the mountain valleys near the airport and along shorelines around Kodiak Island, evidence of them is very limited in the immediate vicinity of the Airport; this is likely a result of the extensive earth-moving activity that occurred during the construction of the World War II military base.

The marine and fresh waters immediately surrounding the northern and eastern boundaries of the Airport contain natural resources that are important subsistence resources for members of local federally recognized tribes, which are the Sun'aq Tribe of Kodiak, the Native Village of Afognak (NVA), and Tangirnaq Native Village (TNV; formerly Woody Island Tribal Council). In particular, these waters support large populations of salmon and other fish that play a key role in the customary and traditional cultural practices of tribal members.

The historical Runway 07/25, which was identified as a contributing feature of the National Historic Landmark when it was established in 1985, would be altered by the installation of EMAS for Alternative 2. The EMAS would introduce a new, non-traditional material to the visual appearance of the runway, and by extension the Landmark. The small amount of EMAS proposed would not constitute a significant visual intrusion on the Landmark, nor would it significantly affect the historical integrity of the runway. As such, the FAA finds that Alternative 2 for Runway 07/25 would have *no adverse effect* on any known resources that are eligible for or listed on the National Register. The State Historic Preservation Officer provided a letter of concurrence in May 2012, which is included in **Appendix 7**.

The abundance and availability of subsistence resources that are tied to the cultural practices of the local Alaska Native community may be significantly affected in the long-term by the Preferred Alternative for Runway 07/25. The primary effects on subsistence resources would involve salmon, which use the coastal waters near the Airport and which are traditionally harvested from the Buskin River. A significant impact on this salmon fishery would also have an indirect but significant adverse effect on the traditional cultural activities associated with it. The Sun'aq Tribal Council (Polasky 2010) and the Native Village of Afognak (Nelson 2010) have both indicated that because of the very important role salmon plays in the traditional foods, traditional practices of sharing harvest, and the cultural identity associated with subsistence-based self-sufficiency and sharing, any significant reduction in the ability to harvest or the harvest quantity of salmon would have a significant impact on the cultural identity of the local Alaska Native community. Therefore, there may be a long-term, adverse effect on customary and traditional practices of the Sun'aq Tribe of Kodiak, NVA, and TNV tribes, because marine and river resources that are traditionally harvested and subject to sharing, consumption, or other actions as part of cultural custom may be significantly impacted.

Runway 18/36 Alternative 7 (Preferred Alternative) would result in *no adverse effect* on historic properties but may have a short-term minor adverse effect on cultural customary and traditional subsistence practices and related cultural practices and identity of the Sun'aq Tribe of Kodiak, NVA, and TNV tribes. A portion of the fill material for the Runway 18/36 Alternative 7 landmass expansion would be placed within the boundary of the National Historic Landmark and require minor alteration of the historical runway. The runway is a contributing feature of the Landmark, but this minor alteration would have *no adverse effect* on the feature or the overall Landmark given the magnitude of paving and other maintenance on the runway since the designation of the Landmark in 1985. This minor change would also not adversely affect the ability of the runway to convey its association with and role in the overall configuration of the Airport property and Landmark military facilities and their operations. Therefore, Alternative 7 for Runway 18/36 would have *no adverse effect* on any known resources that are eligible for or listed on the National Register.

The impacts to subsistence resources and uses from Alternative 7 would be less than any other action alternative for Runway 18/36 because it would avoid the placement of any fill on the north end, near the Buskin River. There may be minor adverse effects on subsistence gathering from fill placed at the southern end of the runway. This alternative may have a short-term, minor adverse effect, but would not have a significant long-term effect, on customary and traditional subsistence practices and related cultural practices and identify of the Sun'aq Tribe of Kodiak, NVA, and TNV tribes.

Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

Due to the significant impact on fisheries of the Buskin River (particularly for subsistence species such as sockeye, coho and pink salmon), there may be a socioeconomic impact on Kodiak residents who use subsistence resources (over 99 percent of the population) under Runway 07/25 Alternative 2. Because almost all residents in Kodiak use subsistence resources, the impact may affect nearly the entire population. However, because subsistence resources affect take home resources for food, the reduction in subsistence resources per capita would likely be felt to a larger extent by low income populations because higher income populations could generally make up the difference in subsistence use through other resources (salary, etc.).

Additionally, because subsistence practices are tied to the cultural identity of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak, there may be a disproportionately high and adverse effect on customary and traditional practices and the cultural identity of those minority populations resulting from Runway 07/25 Alternative 2. These potential indirect effects on low-income and minority populations would not occur with Runway 18/36 Alternative 7, because it avoids fill into the Buskin River area, therefore avoiding the potentially significant subsistence impacts.

No significant adverse impacts are expected to occur to populations of children and no adverse impacts to the health and safety of children are expected. Economic impacts of the project alternatives would include short-term positive direct and indirect impacts from construction due to jobs and expenditures.

Subsistence

The Runway 07/25 Alternative 2 (Preferred Alternative) may result in a long-term reduction in the abundance and availability of harvestable resources used for subsistence purposes, decreased physical access to subsistence resources, and increased competition for subsistence resources. A reduction in subsistence resources would be a result of direct adverse impacts to or loss of subsistence resource habitat, causing a reduction in resource populations. Reductions in subsistence resource populations may result in reductions in abundance and availability for local subsistence users. Generally, loss of habitat causes reductions in resource populations due to reduced food availability, reduced access to required environmental conditions (such as the Buskin River freshwater plume important to juvenile salmonids), and reduced cover (or shelter), causing increased predation. A loss of habitat can also increase competition between and among species for food and cover. Some loss of subsistence resources would occur during construction particularly as fill material is dumped or pushed into marine habitat.

The RSA improvement project would affect primarily marine habitats and marine subsistence resources and uses around Kodiak Airport. Non-marine subsistence resources affected include vegetation above mean high tide along small areas at the runway ends.

For Runway 07/25 Alternative 2 (Preferred Alternative) there would be no significant impacts to subsistence in the short-term. There would be some loss of immobile subsistence species and temporary displacement of mobile subsistence species during fill placement. In addition, subsistence users would be displaced to other nearby marine areas to gather resources, which would likely increase competition for subsistence resources in those locations.

In the long-term, there may be significant impacts to abundance and availability from placement of fill on Runway end 25. The placement of fill along freshwater-influenced habitats off Runway end 25 would adversely affect salmonid populations (particularly juvenile pink and chum salmon) by forcing them into lower quality habitat and, subsequently, may decrease returning adult populations of these species.

Runway 07/25 Alternative 2 would also affect habitat for important prey species for juvenile salmonids, which would affect survivability of some juveniles and subsequently reduce availability of returning adults. There may be measurable decreases in abundance and availability of salmonids for subsistence harvest under this alternative. Subsistence users would be permanently displaced from the existing Runway end 25 due to placement of fill.

For Runway 18/36 Alternative 7 (Preferred Alternative), there would be no significant impacts in the short-term. Some loss of immobile subsistence species from crushing and temporary displacement of mobile subsistence species during fill placement would occur. In addition, subsistence users would be displaced to other nearby marine areas to gather resources, which would likely increase competition for subsistence resources in those locations. In the long-term, there would be no significant impacts due to lower use of area south of Runway end 36 by subsistence users and lower relative importance of habitats in this area relative to subsistence species and avoidance of the Buskin River area.

Following the release of the Draft Environmental Impact Statement (DEIS), the FAA received comments regarding the application of Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). Although the Federal Aviation Administration (FAA) does not concede that an ANILCA Section 810 subsistence evaluation is legally required for this project, following the release of the DEIS, the FAA prepared a full subsistence evaluation that is consistent with Section 810.

Department of Transportation Act Section 4(f)

There are three Department of Transportation Act, Section 4(f) resources within the Project Area that could be that would experience an impact as a result of the Build Alternatives:

1. The Alaska Maritime National Wildlife Refuge,
2. The Buskin River State Recreation Site, and
3. The Kodiak Naval Operating Base and Forts Greely and Abercrombie National Historic Landmark.

The Alaska Maritime National Wildlife Refuge encompasses the submerged lands adjacent to the Airport, including the submerged lands beyond the runway ends. The Alaska Maritime National Wildlife Refuge was established by the Alaska National Interest Lands Conservation Act (ANILCA) to conserve marine mammals, seabirds, and other migratory birds and the marine resources upon which they rely. A physical use of the Alaska Maritime National Wildlife Refuge would occur with all the Build Alternatives for both Runway 07/25 and Runway 18/36.

The Draft EIS concluded that the preferred alternatives would result in a "constructive use" of the Buskin River State Recreation Site because of anticipated effects on local fish populations. However, after a careful reconsideration of the effects on sport fishing activities in the Buskin River State Recreation Site, and the overall potential impact of those effects in the context of all the activities, features, and attributes of the Buskin River State Recreation Site, the FAA has determined that the preferred alternatives would not result in a constructive use of the Buskin River State Recreation Site. As explained in **Section 4.14**, although the preferred alternatives would adversely affect local fish species (see **Section 4.5, *Fish and Invertebrates***), these effects would not substantially diminish fishing activities at the Buskin River State Recreation Site. Moreover, when considered in the context of all the activities, features, and attributes of the Buskin River State Recreation Site, the effects of the preferred alternatives would not result in substantial impairment of the Buskin River State Recreation Site, and thus would not result in constructive use under Section 4(f).

The Kodiak Naval Operating Base and Forts Greely and Abercrombie National Historic Landmark is within the Area of Potential Effect (APE) for the proposed RSA improvement project. Through coordination conducted during the EIS process, the SHPO has concurred with the FAA's finding of no adverse effect on historic properties by any of the proposed project alternatives. All Build Alternatives for both runways would have a de minimis impact on the Kodiak Naval Operating Base and Forts Greely and Abercrombie National Historic Landmark.

There are no feasible and prudent alternatives that would avoid the use of Section 4(f) resources resulting from the placement of fill into marine waters within the Alaska Maritime National Wildlife Refuge. The Preferred Alternatives, Runway 07/25 Alternative 2 and Runway 18/36 Alternative 7, would result in the least overall harm to Section 4(f) resources when compared to the other Build Alternatives because they would minimize the area of Refuge that would experience an impact near the Buskin River, which is an area of higher relative value within the Project Area due to important habitat associated with the mouth of the Buskin River.

Written correspondences from the Department of the Interior/National Park Service and from the State Historic Preservation Office provide concurrence that there would be no adverse effects to Section 4(f) resources as a result of the Build Alternatives. These letters can be found in **Appendix 7, *Historic and Cultural Appendix***.

Light Emissions and Visual Impacts

For light emissions, there would be some short-term impacts from construction related activities but there would be no long-term change to the existing light emissions from the Airport because no lights would be added. Only one Alternative (Runway 18/36 Alternative 7 – Preferred Alternative) would require the movement of lights, resulting from the shift of the runway south by 240 ft.; however, this shift would not create a significant change in the lighting environment.

Scenic quality within visual Project Area is the result of a combination of development and the natural landscape features. Project Area development includes a roadway (Rezanof Drive) that connects the Airport and town and a USCG Base that lies south of town and adjacent to the Airport.

Kodiak residences, businesses, and infrastructure (e.g., street lights, road signs) extend south along Rezanof Drive to the Airport, and a similar level of development is evident within the USCG Base. Much of the natural island scenery is characterized by rugged coastlines, natural environments such as lowland grassy meadows, steep mountain slopes, and rocky mountain peaks and ranges extending into the inland interior and along the island's coastlines.
The main visual impacts from the Preferred Alternatives would result from the visual impact of construction activities, such as the placement of fill, proximity of construction equipment, etc. (short-term) and the extension of landmasses into the aquatic environment (long-term). For the Preferred Alternatives, no long-term significant visual impacts are expected, but there would be moderate to major short-term impacts (during the period of construction for some alternatives - 2013 to 2015). Runway 07/25 Alternative 2 would have moderate impacts in the short-term and Runway 18/36 would have major, short-term impacts would be caused by the proximity of construction to public viewpoints and construction equipment impacts to the existing scenic viewshed.

The Preferred Alternatives are expected to have moderate to minor, non-significant visual impacts in the long-term. Although the landmass extensions might attract the attention of the casual viewer because of the unnatural shape and extension into Chiniak Bay, consistency with existing development and the low, flat, simple and bland profile of the constructed runway, while visible from on-shore and off-shore, would mitigate the changes to scenic quality so that the runway would not dominate the view.

Hazardous Materials, Pollution Prevention, and Solid Waste

Historic uses of the area, particularly those associated with military weapons research and hazardous materials storage and disposal, have contaminated some locations on and near the Airport. Many of these problems have been cleaned up or are in the process of investigation into whether cleanup would be necessary. It is expected that soil and ground water contamination will remain in some locations, even after cleanup. A search of environmental databases, field reconnaissance, and a review of historic aerial photographs suggest that areas where additional RSA would be installed as a result of the proposed project have a low probability of containing buried solid or hazardous waste. Runway 07/25 Alternative 2 would not involve excavation or other substantial ground disturbance in areas known to have contamination.

There is a small potential for construction activities associated with Runway 18/36 Alternatives 2 through 6 to encounter subsurface pollution in an area near the former Snow Removal Equipment Building, located just west of Runway end 18; however, the Preferred Alternative (Runway 18/36 Alternative 7) would avoid this area entirely.

The contaminated site known as "Area 2" is located adjacent to lateral RSA near Runway end 36, could contain subsurface pollution. However, clean-up of soils and subsurface materials has occurred in both of these areas and contaminants have been removed to levels that are likely not an immediate health risk to construction workers. All ground disturbance in these and other areas of the Airport should include hazard-specific monitoring practices designed to 1) immediately alert workers to the presence of hazardous wastes, and 2) provide early notification to appropriate authorities of any ground disturbance that appears to encounter contamination. Additionally, based on guidance in FAA Order 1050.1E, in the event that previously unknown contaminants are discovered during construction, or a spill occurs during construction, all work would stop until the National Response Center is notified.

Because no substantial amount of waste would be generated, Area 2 has been cleaned, and there would not be any disturbance of hazardous material storage sites or sites known to be contaminated by hazardous wastes, neither of the Preferred Alternatives would result in significant environmental impacts.

Construction Impacts

The construction impacts associated with each alternative generally correlate to the area of disturbance. Generally, the larger the size of the RSA improvement and construction disturbance area, the greater the amount of fill, armor rock, asphalt, and other required materials. More truck traffic and barge loads would be needed to get materials to the construction zones, and the duration of construction impact would be lengthened. However, while larger fill placement generally means larger impacts, larger fill footprints near the freshwater plume of the Buskin River have higher impacts than fill placed south of Runway end 36 (which avoids this sensitive area). The construction impact analysis examines local fill material sources and those outside the immediate area, barge off-loading sites, on-road travel routes, associated surface traffic congestion, and potential noise.

The Preferred Alternatives for both runways would place fill materials into marine waters. The amount of fill needed varies by runway and the amounts for the Preferred Alternatives are detailed below:

- Preferred Alternative Runway 07/25 Alternative 2: 256,932 cubic yards of fill
- Preferred Alternative Runway 18/36 Alternative 7: 462,081 cubic yards of fill

Many of the alternatives also incorporate Engineered Material Arresting System (EMAS) into the RSA design. The EMAS blocks would be brought in by barge.

Because of the amount of construction activity necessary for the alternatives, construction impacts such as short-term effects on water quality, air quality, noise, and traffic congestion are possible. Construction projects have the potential to affect surface transportation traffic near the Airport and along routes used to transport construction materials.

There may also be short-term changes to normal aircraft operations, such as a temporary runway closure to accommodate construction on a runway end. Construction for the proposed project is expected to take approximately three years, with limited work in 2013 and completion scheduled for both runways by 2015. Construction would occur only on one runway at a time in order to maintain airport operations.

Contractors would also be required to comply with all applicable construction related regulations, as well as FAA guidance contained in FAA AC 150/5370-10F, *Standards for Specifying Construction of Airports*, FAA AC 150/5320-15F (including Change 1) *Management of Airport Industrial Waste*, FAA AC 150/5320-5C, *Surface Drainage Design* and Item P-156, *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*.

While air, water, noise, and surface transportation impacts are expected during this time period from construction of the proposed project, they would be temporary and not significant, provided impact avoidance and minimization and Best Management Practices (BMPs) are implemented. Potential measures and BMPs are summarized in **Chapter 6, *Mitigation***, of this EIS. These temporary, minor impacts are not expected to exceed any environmental or regulatory thresholds.

Secondary (Induced) Impacts

The proposed project would not result in shifts in patterns of population movement and growth; public service demands; or permanent changes in business and economic activity. Short-term beneficial economic impacts are expected from construction work, but these effects are not expected to shift patterns in population or employment.

Long-term impacts from loss of salmon-rearing habitat under some Build Alternatives may cause significant long-term impacts to salmon fisheries; because almost all residents in Kodiak use subsistence resources, the impact would affect nearly the entire population; therefore there would not be any disproportionate impact on just one section of minority or low-income population relative to the use of subsistence resources.

However, because subsistence resources affect take home resources for food, the reduction in subsistence resources per capita would likely be felt to a larger extent by low-income populations. This is because higher income populations could generally make up the difference in subsistence use through other resources (salary, etc.). This would result in a secondary impact to the low-income section of the population. Additionally, since subsistence practices are tied to customary and traditional practices and the cultural identity of the Sun'aq, Tangirnaq Native Village, and the Native Village of Afognak, there could be a disproportionately high and adverse effect on those minority populations relative to cultural practices and identity. These potential indirect effects on low-income and minority populations would not occur with Runway 18/36 Alternative 7, because it avoids fill into the Buskin River area, therefore avoiding the potentially significant subsistence impacts.

ANILCA

Much of the submerged lands surrounding Kodiak Airport in Chiniak Bay are jointly managed by the USCG Kodiak Station and the USFWS Alaska Maritime Refuge, Gulf of Alaska Unit. The USCG Kodiak Station also manages the land at the Kodiak Airport. The Kodiak Airport was first constructed by the U.S. Navy in 1940 as a military airfield. In 1972, the Navy transferred the facility to the USCG. The ADOT&PF leases the Airport from the USCG.

The Alaska National Interest Lands Conservation Act (ANILCA) (Public Law 96-487) Section 303 (1)(v) set aside "all named and unnamed islands, islets, rocks, reefs, spires, and whatever submerged lands, if any, were retained in Federal ownership at the time of statehood surrounding Kodiak and Afognak Islands" as part of the Alaska Maritime National Wildlife Refuge.

Title XI of ANILCA outlines several specific criteria to be addressed in an EIS for a transportation or utility system (TUS) in a Conservation System Unit (such as the Refuge). Most of these categories align with categories included in the EIS and are therefore summarized in those resource sections. Additionally, there are no expected impacts relating to national security.

Cumulative Impacts

The basis for cumulative impact analysis is the recognition that while the impacts of many actions may be individually small, the cumulative effects of past, present, and reasonably foreseeable actions on populations or resources can be significant.

The Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR §1508.7).

Primary cumulative effects of the Preferred Alternatives relate to the past, present and reasonably foreseeable projects that result in additional impacts to the marine resources and subsistence resources.

Past alterations had various effects on marine and freshwater habitats and resources, including:

- Direct loss of intertidal and subtidal marine habitat, eliminating portions of the water column for residence by floral and faunal species
- Direct loss of intertidal and subtidal soft-bottom habitats in the footprint of built structures, and creation of rocky intertidal and subtidal habitat from the structures themselves (e.g., runway fill and armor rock from existing runway ends)
- Direct loss of marine life (e.g., aquatic vegetation and sessile invertebrate species)
- Direct loss or alteration of freshwater and estuarine habitat
- Modification of shoreline slope due to increased grade of armor rock embankments, resulting in loss of low-gradient intertidal habitat
- Degraded connectivity of riparian and supratidal areas to subtidal habitats (resulting in decreased inputs of nutrients and invertebrates into marine waters, as well as decreased nutrient processing)
- Increased stormwater runoff due to decreased permeable surfaces and increased impermeable surfaces
- Decreased water quality due to stormwater runoff

Other marine projects may be built within the greater Kodiak area. The projects considered in the cumulative analysis would not be expected to add to potential impacts in the Project Area, but would add to the continued degradation of shoreline habitat in the Landscape Area (Chiniak Bay). Impacts of the Build Alternatives, when combined with past, present or reasonably foreseeable projects, would cumulatively degrade the shoreline habitat in the Project Area for fish and invertebrates and further reduce species population and diversity, which also relate to subsistence impacts. On a landscape scale, unaltered shoreline habitat is becoming increasingly limited in the greater Kodiak area and the added reduction in unaltered shoreline habitat from the alternatives would have an adverse cumulative effect on fish and invertebrates and potentially subsistence resources.

Mitigation

"Mitigation" is the process used to avoid, minimize, and compensate for environmental impacts of an action. Steps in this process typically include methods to avoid an impact altogether if possible, minimize or reduce the magnitude of impact to the extent practicable, and compensate for unavoidable impacts. Best management practices and conservation measures to avoid, minimize and reduce impacts are detailed in **Chapter 6, *Mitigation***.

The compensatory mitigation plan has the following goals and objectives:

- Preserving the functions and values of high quality habitats in the Kodiak area that are related to anadromous fisheries, migratory birds, and marine resources and habitats;
- Providing access to and preservation of areas with subsistence resources that are located within the Kodiak area; and
- Managing the sustainability of subsistence resources in the Buskin River by providing funding to the ADF&G Subsistence Management Program.

These goals and objectives would be achieved by making a $2 million in-lieu fee (ILF) payment to an approved ILF provider[2] for the purpose of purchasing high-value intertidal, estuarine, and/or coastal habitat in the Kodiak area (defined as the Kodiak Archipelago Islands) for preservation.

The ILF payment would be based on a ratio of 5.5:1 (i.e., 5.5 acres of mitigation for each acre of fill). This mitigation ratio was determined by the FAA through coordination with the USFWS, the NMFS, EPA, and the ACOE. In working with the regulatory and resource agencies, the following effects that may be caused by the project were taken into consideration in developing the mitigation ratio:

- Change in the freshwater plume from the Buskin River
- Loss of fish habitat
- Increase in stormwater runoff
- Effects on aquatic assemblages
- Changes to geomorphology of the Buskin River mouth
- Loss of threatened and endangered species habitat
- Loss of Essential Fish Habitat
- Effects to bears from decreased fish runs
- Loss of migratory bird habitat

[2] At this time, only The Conservation Fund has an approved ILF Instrument with the ACOE in the Kodiak area.

The FAA has received written concurrence from the USFWS, the NMFS, and ADF&G on the proposed mitigation plan. A functional assessment using a methodology approved by the ACOE was performed for the wetlands and other waters of the U.S. affected by this project and is included in the Kodiak Airport EIS Wetland Delineation Report (included in **Appendix 2, Wetlands, and summarized** in **Section 4.3, Wetlands And Other Waters of the U.S.**). The ACOE has indicated that the proposed mitigation ratio of 5.5:1 would be appropriate to compensate for the fill into waters of the U.S., and would be consistent with Alaska District RGL No. 09-01.

The ILF payment would be consistent with the preference hierarchy in the compensatory mitigation regulations issued by the ACOE and EPA (see Section 6.2, *Requirements Relevant to Mitigation*). The project area is not within the service area of a wetland mitigation bank, but is within the service area of an approved ILF program operated by The Conservation Fund (TCF). During coordination with the FAA, the relevant federal agencies (i.e., the ACOE, the USFWS, the NMFS, and EPA) agreed that acquisition and preservation of land through an ILF payment would be the preferred form of mitigation because it would provide long-term preservation of the functions and values of high quality habitat that are related to those resources that would be impacted (anadromous fish, migratory birds, and marine habitat). ADF&G has also agreed to the mitigation plan described in this chapter. The FAA has been coordinating with TCF to ensure that the property(ies) acquired with the ILF payment would meet the mitigation goals for the project.

In addition to the ILF payment, the mitigation plan includes a payment of $200,000 to the ADF&G to fund their existing subsistence management program on the Buskin River. This program aids in the management of sustainability of the salmon runs and helps manage the river for all subsistence users. During the Draft EIS process, the FAA received several comments suggesting either adult or smolt out-migration be monitored to evaluate short-term and long-term effects to the river's salmon runs. ADF&G would use the $200,000 either to continue the current adult escapement monitoring to allow in-season management of the subsistence resource, or to develop a smolt enumeration study.

The Sun'aq Tribe of Kodiak requested that the FAA do one of the following: (1) establish an area similar to the size of the habitat being lost from the RSA project as a clam bed and provide on-going testing of paralytic shell fish poisoning in clams at the Kodiak Area at no cost to tribal members; or (2) provide $1 million to continue their salmon enhancement program. These mitigation options are currently the subject of ongoing government-to-government consultation between the Tribe and the FAA.

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 07/25
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 07/25 Alt. 2	Runway 07/25 Alt. 3
Coastal Resources and Navigation	For Alternatives 2-3: CZMA does not apply; Resource specific impacts are detailed in other resource sections.	
Water Quality	For Alternatives 2-3: Increase in impervious surface/stormwater runoff; Moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate; with BMPs/existing regulations and permits, no significant impacts expected.	
Wetlands and other waters of the U.S.	No fill into wetlands; 9.13 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect effect to maintenance of natural systems supporting fish habitat would result in significant impacts to waters of the U.S.	No fill into wetlands; 15.27 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat would result in significant impacts to waters of the U.S.
Floodplains	For Alternatives 2-3: No fill into Buskin River floodplain. No significant impact.	
Fish and Invertebrates	For Alternatives 2-3: Major loss of juvenile salmonid rearing and foraging habitat; major loss of salmonid prey species habitat; minor increased stormwater runoff; major changes to freshwater plume; moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate; major potential localized changes to aquatic assemblages. Significant impacts to Fisheries Resources. Effects for Alternative 3 are similar to the long-term impacts described for Runway 07/25 Alt. 2, but the magnitude of adverse impact from Alternative 3 is greater due to increased size of fill footprint.	
Waterbirds	Loss of small percentage of habitat in the Project Area for Steller's Eider (3.4%), Emperor Goose (3.4%), Pelagic Cormorant (2.8%), Black Oystercatcher (3.0%), Marbled Murrelet (2.3%). No significant impacts	Loss of small percentage of habitat in the Project Area for Steller's Eider (5.0%), Emperor Goose (5.0%), Pelagic Cormorant (4.0%), Black Oystercatcher (4.3%), Marbled Murrelet (3.4%). No significant impacts.
Marine Mammals	Loss of small percentage of habitat in Project Area for Marine Mammals (2.9%), N. Sea Otter Critical Habitat (3.5%), and Steller Sea Lion Critical Habitat (3.0%). No significant impacts.	Loss of small percentage of habitat in Project Area for Marine Mammals (4.7%), N. Sea Otter Critical Habitat (5.1%), and Steller Sea Lion Critical Habitat (4.6%). No significant impacts.

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 07/25
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 07/25 Alt. 2	Runway 07/25 Alt. 3
Terrestrial Wildlife and Vegetation	1.2% of the total cover impacted in the project area; no federally listed threatened, endangered species in the terrestrial project area; indirect effects on Kodiak brown bear from reduced salmon runs. No significant impact on either special status species or non-listed species.	1.6% of the total cover impacted in the project area; no federally listed threatened, endangered species in the terrestrial project area; indirect effects on Kodiak brown bear from reduced salmon runs. No significant impact on either special status species or non-listed species.
Historical, Architectural, Archaeological, and Cultural Resources	For Alternatives 2-3: No adverse effect on historic properties. There may be long-term, significant adverse effect on customary and traditional practices of the Sun'aq, NVA, and TNV tribes, because marine and river resources that are traditionally harvested and subject to sharing, consumption, or other actions as part of cultural custom may be significantly impacted. Potential impacts would be greater under Alternative 3 than Alternative 2.	
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	For Alternatives 2-3: Socioeconomic impact on Kodiak residents who use subsistence resources (over 99 percent of the population) from a potential reduction in per capita harvest. Because almost all residents in Kodiak tend to use subsistence resources, the impact would affect nearly the entire population; therefore there would not be any disproportionate impact to any just one section of minority or low- income population relative to the use of subsistence resources. However, because subsistence resources affect take home resources for food, the reduction in subsistence resources per capita would likely be felt to a larger extent by low income populations because higher income populations could generally make up the difference in subsistence use through other resources (salary, etc.). Additionally, because subsistence practices are tied to the cultural identity of the Sun'aq Tribe of Kodiak, Tangirnaq Native Village, and the Native Village of Afognak, there could be a disproportionately high and adverse effect on customary and traditional practices and the cultural identity of those minority populations. Potential economic benefit from construction; no effects on children's health or safety. Potential impacts would be less than under Alternative 3 due to greater impact on important habitat near the Buskin River.	

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 07/25
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 07/25 Alt. 2	Runway 07/25 Alt. 3
Subsistence	For Alternatives 2-3: Some loss of immobile subsistence species and temporary displacement of mobile subsistence species during fill placement. Subsistence users would be displaced to other nearby marine areas to gather resources, which would likely increase competition for subsistence resources in those locations. Potential significant long-term impacts to abundance and availability of subsistence resources. Effects on abundance and availability in the affected important freshwater plume habitat because of potential for increased mortality of salmon smolts and, subsequently, returning adult salmonids. Potential impacts would be greater under Alternative 3 than Alternative 2 due to the increased size of fill footprint.	
Noise	For Alternatives 2-3: No change in number of operations, location of operations or the resulting noise contour; no noise sensitive uses in the 65 DNL contour; no effect on Buskin River State Recreation Sites, Alaska Maritime National Wildlife Refuge, or Finny Beach. No significant impacts.	
Compatible Land Use	For Alternatives 2-3: No significant noise impacts; required lease amendment.	
Department of Transportation Section 4(f)	Buskin River State Recreation Site : No physical or constructive use. Alaska Maritime National Wildlife Refuge: Physical Use of 9.1 acres. National Historic Landmarks: De-minimis impact; no adverse effect on historic properties.	Buskin River State Recreation Site: No physical or constructive use. Alaska Maritime National Wildlife Refuge: Physical Use of 15.3 acres. National Historic Landmark: De-minimis impact; no adverse effect on historic properties.

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 07/25
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 07/25 Alt. 2	Runway 07/25 Alt. 3
Light Emissions and Visual Impacts	For Alternatives 2-3: Moderate short and long-term visual impacts. No significant lighting impacts.	
Hazardous Materials, Pollution Prevention, and Solid Waste	For Alternatives 2-3: No disturbance of known contaminated sites; no substantial waste generated. No significant impacts.	
Farmland	For Alternatives 2-3: No prime or unique farmland impacted.	
Natural Resources and Energy Supply	256,932 cy of fill; small increase in fuel and electric use. No significant impacts.	455,158 cy of fill; small increase in fuel and electric use. No significant impacts.
Air Quality	For Alternatives 2-3: No change in number of aircraft operations; small short-term increases in emissions from construction. No significant impacts.	
Climate	For Alternatives 2-3: No change in number of aircraft operations; small short-term increases in emissions from construction. No significant impacts.	
Wild and Scenic Rivers	For Alternatives 2-3: Project Area does not include any designated wild and scenic rivers, study rivers, or otherwise eligible rivers.	
Construction Impacts	256,932 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	462,081 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.
Secondary (Induced) Impacts	For Alternatives 2-3: No shifts in patterns of population movement or growth; no permanent changes in economic activity; primary effects result from induced effects from significant impacts to fisheries, associated subsistence and cultural practices.	

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Coastal Resources and Navigation	For all Alternatives 2-7 CZMA does not apply; Resource specific impacts are detailed in other resource sections.					
Water Quality	For Alternatives 2-7: Increase in impervious surface/stormwater runoff; with BMPs/existing regulations and permits, no significant impacts expected.					
Wetlands and other waters of the U.S.	Fill into 0.32 acres into wetlands; 10.91 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat result in significant impacts to waters of the U.S.	Fill into 0.32 acres into wetlands; 8.24 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat result in significant impacts to waters of the U.S.	Fill into 0.32 acres into wetlands; 7.24 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat result in significant impacts to waters of the U.S.	Fill into 0.32 acres into wetlands; 15.27 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat result in significant impacts to waters of the U.S.	Fill into 0.32 acres into wetlands; 7.97 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat result in significant impacts to waters of the U.S.	Fill into 0.11 acres into wetlands; 8.68 acres fill into marine waters; magnitude of tidal waters loss, adverse indirect affect to maintenance of natural systems supporting fish habitat result in significant impacts to waters of the U.S.
Floodplains	For all Alternatives 2-6 Small amount of fill into Buskin River 100-year floodplain; would not result in a considerable probability of loss of human life, likely future damage associated with the encroachment that could be substantial in cost or extent, or a notable adverse impact on the floodplain's natural and beneficial floodplain values. No significant impacts					No fill into Buskin River floodplain. No significant impacts

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Fish and Invertebrates	For all Alternatives 2-6 Major loss of juvenile salmonid rearing and foraging habitat; major loss of salmonid prey species habitat; minor increased stormwater runoff; major changes to freshwater plume; moderate changes to sediment transport; moderate decrease in ability of Buskin River mouth to migrate; major potential localized changes to aquatic assemblages. Significant impacts to Fisheries Resources. Effects would be similar for Alts 2-6, but greater for those alternatives with higher footprints placed on freshwater-influenced habitats near the Buskin River.					Moderate loss of juvenile salmonid rearing and foraging habitat; moderate loss of salmonid prey species habitat; minor increased stormwater runoff; negligible changes to freshwater plume; negligible changes to sediment transport; negligible decreased ability of Buskin River mouth to migrate; moderate potential localized changes to aquatic assemblages. No Significant Impacts to Fisheries Resources.
Waterbirds	Loss of small percentage of habitat in the Project Area for Steller's Eider, Emperor Goose, Pelagic Cormorant, Black Oystercatcher, Marbled Murrelet (1.8-5.0%). No significant impacts.					

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Marine Mammals	Loss of small amount of marine mammal habitat; N. Sea Otter Critical Habitat and Steller Sea Lion Critical Habitat (1.7-4.8%); no significant impacts due to small amount of area lost compared to total habitat, no significant impact on function or conservation role of affected critical habitat.					
Terrestrial Wildlife and Vegetation	Loss of small percentage of the total cover impacted in the project area; no federally listed threatened, endangered species in the terrestrial project area; indirect effects on Kodiak brown bear from reduced salmon runs. No significant impact on either special status species or non-listed species.					Loss of small percentage of total cover impacted in the project area; no federally listed threatened, endangered species in the terrestrial project area; no effects on Kodiak brown bear due to avoidance of fill toward the Buskin River. No significant impact on either special status species or non-listed species.
Historical, Architectural, Archaeological, and Cultural Resources	For all Alternatives 2-6 No adverse effect on historic properties. There may be long-term, significant adverse effect on customary and traditional practices of the Sun'aq Tribe of Kodiak, Native Village of Afognak (NVA) and Tangirnag Native Village (TNV), because marine and river resources that are traditionally harvested and subject to sharing, consumption, or other actions as part of cultural custom may be significantly impacted. Effects would be similar for Alts 2-6, but magnitude of effect differs slightly between alternatives based on extent of fill.					No adverse effect on historic properties. Short-term minor adverse effect on cultural customary and traditional subsistence practices and related cultural practices and identity of the Sun'aq, NVA, and TNV tribes.

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	Socioeconomic impact on Kodiak residents who use subsistence resources (over 99 percent of the population) from a potential reduction in per capita harvest. Because almost all residents in Kodiak tend to use subsistence resources, the impact would affect nearly the entire population; therefore there would not be any disproportionate impact to any just one section of minority or low- income population relative to the use of subsistence resources. However, because subsistence resources affect take home resources for food, the reduction in subsistence resources per capita would likely be felt to a larger extent by low income populations because higher income populations could generally make up the difference in subsistence use through other resources (salary, etc.). Additionally, because subsistence practices are tied to the cultural identity of the Sun'aq, Tangirnaq Native Village, and the Native Village of Afognak, there could be a disproportionately high and adverse effect on customary and traditional practices and the cultural identity of those minority populations. Potential economic benefit from construction; no effects on children's health or safety.					Impacts described for Alts 2-6 would not occur with Alt. 7, because it avoids fill into the Buskin River area, therefore avoiding the potentially significant subsistence impacts; Potential economic benefit from construction; no effects on children's health or safety.
Subsistence	For all Alternatives 2-6 Some loss of immobile subsistence species and temporary displacement of mobile subsistence species during fill placement. Subsistence users would be displaced to other nearby marine areas to gather resources, which would likely increase competition for subsistence resources in those locations. Potential significant long-term impacts to abundance and availability of subsistence resources. Effects on abundance and availability in the affected important freshwater plume habitat because of potential for increased mortality of salmon smolts and, subsequently, returning adult salmonids. Effects would be similar for Alts 2-6, but greater for those alternatives with higher footprints placed on freshwater-influenced habitats near the Buskin River.					No Significant Impacts due to lower use of area south of Runway end 36 by subsistence users and lower relative importance of habitats in this area relative to subsistence species. Placement of fill at Runway end 36 would displace habitat for subsistence resources, such as halibut and crab.

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Noise	For all Alternatives 2-6: No change in number of operations, location of operations or the resulting noise contour; no noise sensitive uses in the 65 DNL contour; no effect on Buskin River State Recreation Sites, Alaska Maritime National Wildlife Refuge, or Finny Beach. No significant impacts.					Slight shift in runway threshold; no noise sensitive uses in the 65 DNL contour.
Compatible Land Use	For all Alternatives 2-6: No significant noise impacts; required lease amendment.					No significant noise impacts; required lease amendment; required modification to avigation easements.
DOT Act Section 4(f)	Buskin River State Recreation Site: No physical use or constructive use. . Alaska Maritime National Wildlife Refuge: Physical Use of between 7.2 and 15.3 acres of land. National Historic Landmark: De-minimis impact; no adverse effect on historic properties.					Buskin River State Recreation Site : No use Alaska Maritime National Wildlife Refuge: Physical Use of 8.7 acres. National Historic Landmark: De-minimis impact; no adverse effect on historic properties.

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Light Emissions and Visual Impacts	For all Alternatives 2-7: Major short-term visual impacts; minor long-term visual impacts; no significant lighting impacts.					
Hazardous Materials, Pollution Prevention, and Solid Waste	For all Alternatives 2-7: No disturbance of known contaminated sites that have not been cleaned up; no substantial waste generated; no significant impacts.					
Farmland	For all Alternatives 2-7: No prime or unique farmland impacted.					
Natural Resources and Energy Supply	517,354 cy of fill; small increase in fuel and electric use; no significant impacts.	289,049 cy of fill; small increase in fuel and electric use; no significant impacts.	286,248 cy of fill; small increase in fuel and electric use; no significant impacts.	630,235 cy of fill; small increase in fuel and electric use; no significant impacts.	347,625 cy of fill; small increase in fuel and electric use; no significant impacts.	462,081 cy of fill; small increase in fuel and electric use; no significant impacts.
Air Quality	For all Alternatives 2-7: No change in number of aircraft operations; small short-term increases in emissions from construction; no significant impacts.					
Climate	For all Alternatives 2-7: No change in number of aircraft operations; small short-term increases in emissions from construction; no significant impacts.					
Wild and Scenic Rivers	For all Alternatives 2-7: Project area does not include any designated wild and scenic rivers, study rivers, or otherwise eligible rivers.					

TABLE 2
ENVIRONMENTAL IMPACT SUMMARY RUNWAY 18/36
IMPROVEMENTS TO THE RUNWAY SAFETY AREA

Impact Category	Runway 18/36 Alt. 2	Runway 18/36 Alt.3	Runway 18/36 Alt.4	Runway 18/36 Alt.5	Runway 18/36 Alt.6	Runway 18/36 Alt.7
Construction Impacts	517,354 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	289,049 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	286,248 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	630,235 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	347,625 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.	462,081 cy of fill; air, water, noise and surface transportation impacts from construction that would be temporary and not significant due to use of BMPs and avoidance/minimization measures.
Secondary (Induced) Impacts	No shifts in patterns of population movement or growth; no permanent changes in economic activity; primary effects result from induced effects from significant impacts to fisheries, associated subsistence and cultural practices.					No shifts in patterns of population movement or growth; no permanent changes in economic activity; no significant impact on fisheries, subsistence, or resulting induced impacts due to avoidance of Buskin River.

References

- FAA. *Airport Design*. (FAA, September 29, 1989).
- N. Nelson, Native Village of Afognak Tribal Chairperson, letter of comments to the FAA on the Preliminary Draft EIS, January 15, 2010.
- R. Polasky, Sun'aq Tribal Administrator, letter of comments to the FAA on the Preliminary Draft EIS, January 15, 2010.